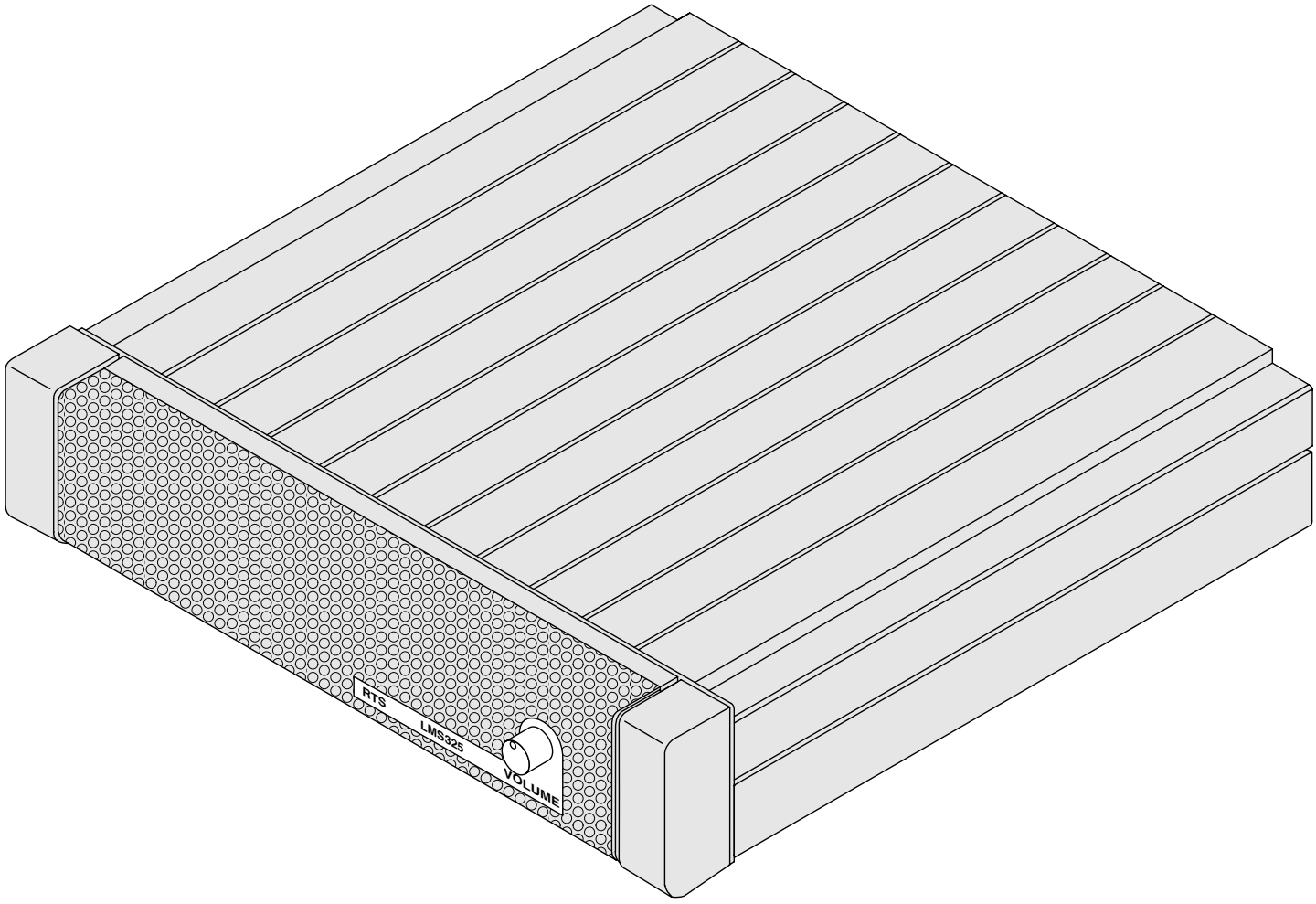
User Manual
LMS-325
Line Monitor Speaker



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Warranty Notice

See the enclosed warranty card for further details.

Customer Support

Technical questions should be directed to:

Customer Service Department
RTS/Telex Communications, Inc.
12000 Portland Avenue South
Burnsville, MN 55337 USA
Telephone: 800-392-3497
Fax: 800-323-0498

Return Shipping Instructions

Customer Service Department
Telex Communications, Inc. (Lincoln, NE)
Telephone: 402-467-5321
Fax: 402-467-3279
Factory Service: 800-553-5992

Please include a note in the box which supplies the company name, address, phone number, a person to contact regarding the repair, the type and quantity of equipment, a description of the problem and the serial number(s).

Shipping to the Manufacturer

All shipments of product should be made via UPS Ground, prepaid (you may request from Factory Service a different shipment method). Any shipment upgrades will be paid by the customer. The equipment should be shipped in the original packing carton. If the original carton is not available, use any suitable container that is rigid and of adequate size. If a substitute container is used, the equipment should be wrapped in paper and surrounded with at least four (4) inches of excelsior or similar shock-absorbing material. All shipments must be sent to the following address and must include the Proof of Purchase for warranty repair. Upon completion of any repair the equipment will be returned via United Parcel Service or specified shipper, collect.

Factory Service Department
Telex Communications, Inc.
8601 East Cornhusker Hwy.
Lincoln, NE 68507 U.S.A.
Attn: Service

This package should include the following:

CHAPTER 1

Description and Specifications 1
General Description 2
Features 2
Controls 2
Specifications 2
General 2
Connector Pin Configurations 3
Speaker Amplifier 3

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CHAPTER 1

Description and Specifications

What you will find in this chapter:

- General Description
- Features
- Controls
- General Specifications
- Connector Pin Configurations
- Speaker Amplifier Specifications

General Description

The LMS-325 is a modular amplified speaker that can be used to maonitor one or two intercom or program channels. The LMS-325 is a five-watt. eight-ohm modular amplified speaker for use with RTS rack or console-mounted intercom systems.

Features

Features of the LMS-325 include:

- Two monaural phone jacks for two separate audio inputs.
- One 3-pin XLR connector for RTS intercom channels one and two.
- Control to adjust volume of speaker output.
- Control that balances the speaker's audio level between input one and input two.
- Power externally from a Telex Wall Pack.

Controls

The LMS-325 has the following controls:

- Detented volume control to simultaneously adjust the speaker level for both input lines.
- Control to balance the relative level of the input line one and input line two.

Specifications

General

Impedence
8 ohms

Power Rating
5 watts

Sensitivity
90± dB/2.83V/meter on axis averaged over one octave bands centered at 250 Hz, 500 Hz, 1 kHz, 2 kHz, 4 kHz and 8 kHz when enclosed in a sealed box with a volume of 1.3 liters.

Frequency Response
200 Hz to 10 kHz ± dBon 1/10 octave measurements in a sealed box with a volume of 1.3 liters.

Free Air Resonance
200 Hz to 250 Hz

Stray Magnetic Field
Less than 1 gauss at a distance of 1 cm from chassis.

Mechanical Noise
Free of buzzes and rattles with 5W sinewave input from 100 Hz to 10 kHz

Environmental Requirements
Storage: -20°C to 80°C; 0% to 95% humidity, non-condensing.
Operating: 0°C to 50°C; 0% to 95% humidity, non-condensing.

Dimensions
1.72” (44mm)H x 8.2”(208mm)W x 8” (203”)D

Weight
2 lbs. 12 oz. (1.25kg)

Connector Pin Configurations

Speaker Inputs

Type:	RCA Phone Jacks
Tip:	Audio
Sleeve:	Common
Type:	XLR-3F
Pin 1	Common
Pin 2	RTS Channel 1 audio
Pin 3	RTS Channel 2 audio

External Power

Type:	2.0 mm jack
Internal pin:	positive (+)
External shell:	negative (-)

Speaker Amplifier

NOTE: Specifications are for *INPUT 1* with the balance control set for minimum attenuation. Specifications for *INPUT 2* are identical.

Input Impedance
47 kΩ

Input Level
0.7 Vrms

Output Amplifier Power
5 W maximum, 4 W continuous into 8 Ω

Signal to Noise Ratio
75 dB, reference 2 W into 8 Ω

Total Harmonic Distortion
Less than 0.5% at 2 W nominal.

Balance Control
12 dB maximum relative attentuation.

CHAPTER 2

Operation

What you will find in this chapter:

- External Connections & Controls
- Mounting Configurations

External Connections & Controls

NOTE: The numbers refer to the callouts in Figure 1.

1. Volume Control
   Use this control to simultaneously adjust the speaker level for both speaker input lines.
2. 12-15 VDC Input Jack
   The LMS-325 is powered from a Telex® Wall Pack (part number 532006-000). Plug the Wall Pack inot the 12-15 VDC jack and into an AC outlet.
3. Balance Control
   This control adjusts the relative level of the Input 1and Input 2 (Channel 1 and Channel 2, respectively). Use a small flat-blade screwdriver to adjust the control.
4. Audio Input Jacks
   These 1/4" monaural phone jacks can be used to connect audio inputs from some other line-level program sources (an auxiliary output from a radio or tap player for example).
5. XLR Line Input Connector
   This 3-pin female XLR jack can be connected directly to an RTS™ intercom line. The RTS™ intercom line may carry Channel 1, Channel 2, or both channels.

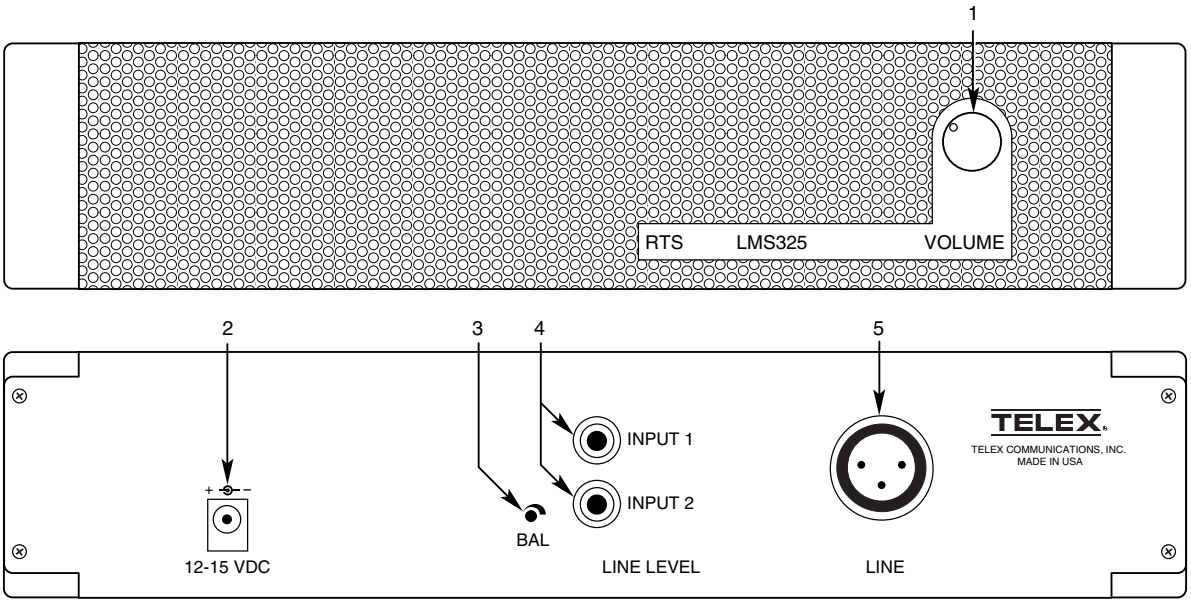


Figure 1. LMS-325 Connections and Controls

Mounting Configurations

Optional mounting configurations for modular RTS™ intercom stations are shown in Figure 2 and include rack-mount, console-mount, desktop, and portable stations.

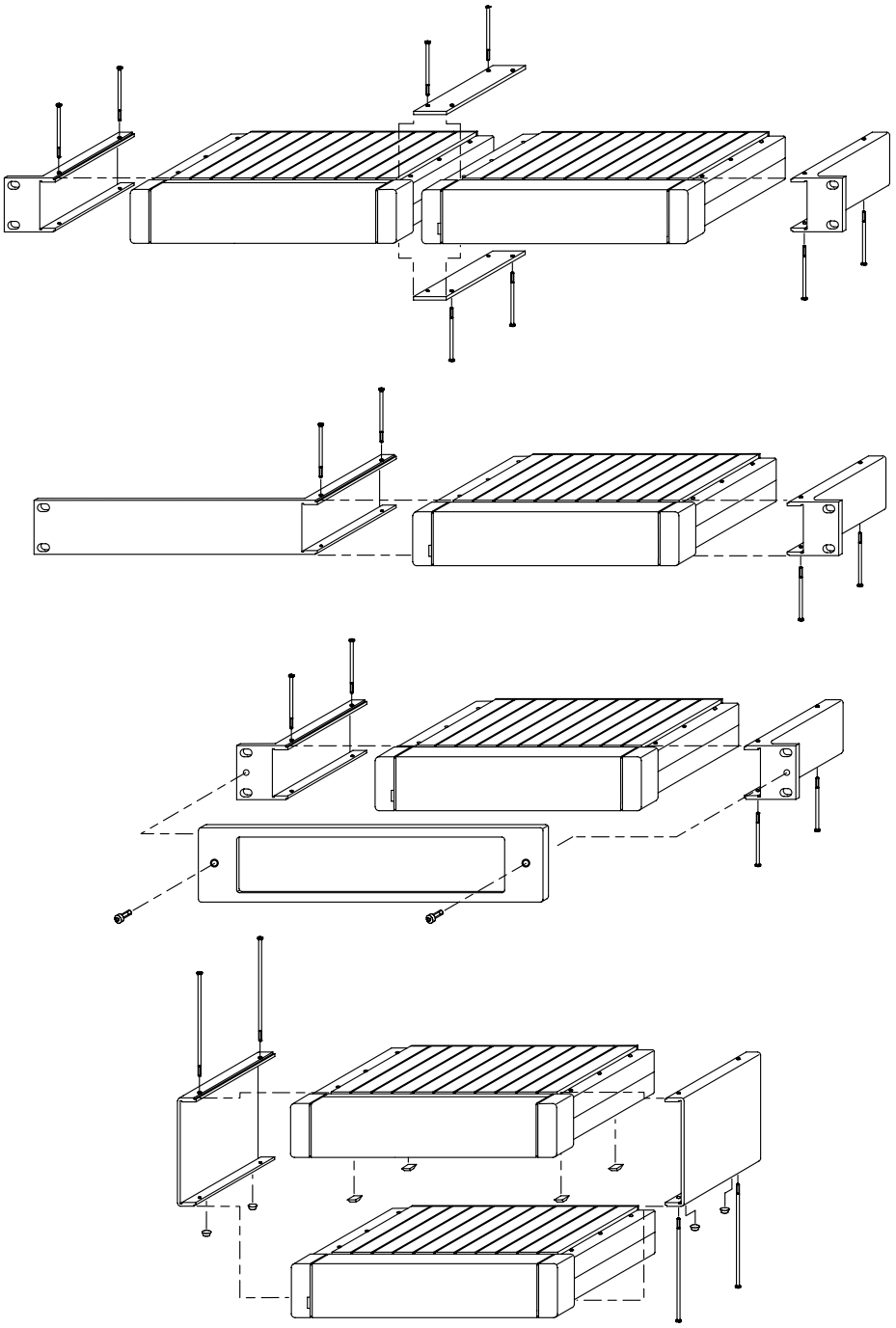


Figure 2. Optional Mounting Configurations

CHAPTER 3

Replacement Parts

What you will find in this chapter:

- Where to obtain parts
- Mechanical Parts
- Electrical Parts

Where to Obtain Parts

Parts may be obtained directly from Telex at:

Telex/RTS Systems
12000 Portland Ave South
Burnsville, MN 55337
800-392-3497
Fax 800-323-0498

Mechanical Parts

TABLE 3. Mechanical Parts

Final Assembly
(Refer to page 19 for Item No. locations

Item No.	Description	Part No.
1	Speaker Grill Assembly, LMS-325	9020-7490-000
2	Foam Strip, 1/4” Wide, Grey, 6.0” LG.	4501-0076-02
3	*6* Case Extrusion	9060-6260-00
4	P.C. Board Assembly, LMS-325	9030-7490-000
5	Gasket, Rear Panel	4501-0076-00
6	Screw, Case	9160-6305-00
7	Screw, Metric	1603008
8	Screw, #4-20, Plastite	51856-005
9	Screw, #4-40 x 1/2” LG.	51845-039
10	Rear Panel, LMS325	9080-7490-000
11	Hex Nut, #4	52188-006
12	Insulator, Silicone Pad	57896-003
13	Washer	50013-035
14	Cement	25400-046
15	Thermal Compound	84627-000

TABLE 4. Speaker Grill Assembly

Speaker Grill Assembly
(Refer to Pages 20-21 Item No. locations)

Item No.	Description	Part No.
1	Bezel, Speaker	9070-6264-00
2	Speaker Grill, LMS325/MCS325	9070-7490-000
3	Label, LMS325	9170-6633-002
4	Spacer	80660636
5		
6		
7		

TABLE 4. Speaker Grill Assembly

Speaker Grill Assembly
(Refer to Pages 20-21 Item No. locations)

Item No.	Description	Part No.
8	Washer, Lock	50049-003
9	Speaker	590530-000
10	Screw	51845-056
11	Conn. Housing, 2-pin	52264-002
12	Terminal, Crimp Style, Snap In	54460-001
13	Wire, 24 AWG, Black	51204-010
14	Wire, 24 AWG, White	51204-009
15	Wire, 24 AWG, Blue	51204-006
16	Potentiometer, 10K Ohm	54131-006
17	Bracket	9110-7490-000
18	Knob, Grey	2703-0034-00
19	Screw	1008602000
20	Mounting Plate	9070-6889-001

TABLE 5. Electrical Parts

PC Board Assembly
Refer to Page 23 for Reference No.

Qty	Ref. No.	Description	Part No.
1	D1	Diode, IN4001, 50V	50745-010
1	C14	Not Installed	51821-012
1	C9	Capacitor, EL, 10 µF, 25V	51821-622
2	C10	Capacitor, EL, 47 µF, 25V	51821-642
	C11		
4	C12	Capacitor, EL, 100 µF, 25V	51821-626
	C13		
	C16		
	C18		
2	R8	Resistor, CF, 100 kΩ, 5%, 1/4 W	52154-233
	R9		
2	R11	Resistor, CF, 47 kΩ, 5%, 1/4 W	52154-241
	R14		
4	R32	Resistor, CF, 22 kΩ, 5%, 1/4 W	52154-249
	R33		
	R38		
	R39		

TABLE 5. Electrical Parts

PC Board Assembly Refer to Page 23 for Reference No.			
Qty	**Ref. No.**	**Description**	**Part No.**
8	R28	Resistor, CF, 10 kΩ, 5%, 1/4 W	52154-257
	R29		
	R30		
	R31		
	R34		
	R35		
	R36		
	R37		
1	R7	Resistor, CF, 1.8 kΩ, 5%, 1/4 W	52154-275
1	R27	Resistor, CF, 2.7 Ω, 5%, 1/4 W	52154-343
2	R12	Resistor, CF, 0 Ω, 5%, 1/4 W	52154-971
	R17		
2	C17	Capacitor, Cer. Disc. 10 pF 500 V. 10%	52157-502
	C19		
1	C6	Capacitor, CM, 0.33 µF, 50V	52676-512
2	C5	Capacitor, CM, 1 µF, 50V	52676-517
	C15		
4	C1	Capacitor, CM, 0.22 µF, 50V	52676-613
	C2		
	C24		
	C25		
2	C3	Capacitor, CM, 0.1 µF, 50V	52676-615
	C4		
2	C7	Capacitor, NP, 47 µF, 35V	52710-068
	C8		
3	R1	Resistor, MF, 1 kΩ, 1%, 1/4W	54044-100
	R10		
	R15		
1	R2	Resistor, MF, 2 kΩ, 1%, 1/4W	54044-200
2	R5	Resistor, MF, 11.5 kΩ, 1%, 1/4W	54045-115
	R16		
2	R3	Resistor, MF, 100 kΩ, 1%, 1/4 W	54046-100
	R4		
1	J3	Connector, ST Locking, 0.100, M-2	57721-002
1	U1	IC, Audio Amp, NTE 1851	59616-000
1	J2	Connector, DC Power Jack, 2.0mm	59697-001
1	F1	Fuse, Fast Acting, 2A	536004-003
1	J4	Connector, RA XLR, F-3	2018008100
1	U4		760361
1	D6	Diode, Zener, 17V, 1N5354	86770-003
2	C20	Capacitor, EL, 2200 µF, 35V	51821-232
	C21		

TABLE 5. Electrical Parts

PC Board Assembly Refer to Page 23 for Reference No.			
Qty	**Ref. No.**	**Description**	**Part No.**
2	C22	Capacitor, EL, 0.1 µF, 25V	517004-000
	C23		
1	R13	Potentiometer, 10kΩ, 30%, 0.08W	14060044-00
1	R18	Potentiometer, 10kΩ, 20%, 0.1W	14090060-00
2	U2	IC, Low Noise Dual Op-Amp, LM833N	1603083300
	U3		
13	TP1	Terminal with Insert. #ME151-101-1000	20170014-00
	TP2		
	TP3		
	TP4		
	TP5		
	TP6		
	TP7		
	TP8		
	TP9		
	TP10		
	TP11		
	TP12		
	TP13		
1	J1	Connector, RA Dual RCA-Type Jack, Yellow	20180090-00
1		PC Board Rev E	9040-7490-000
AR		Solder Paste	BE738

CHAPTER 4

Drawings

In this chapter:

- 9010-7490-000 LMS-325 Final Assembly Drawing
- 9020-7490-000 Speaker Grill Assembly
- 9027-7490-000 LMS-325 Schematic Drawing
- 9030-7490-000 Speaker Unit Assembly Drawing

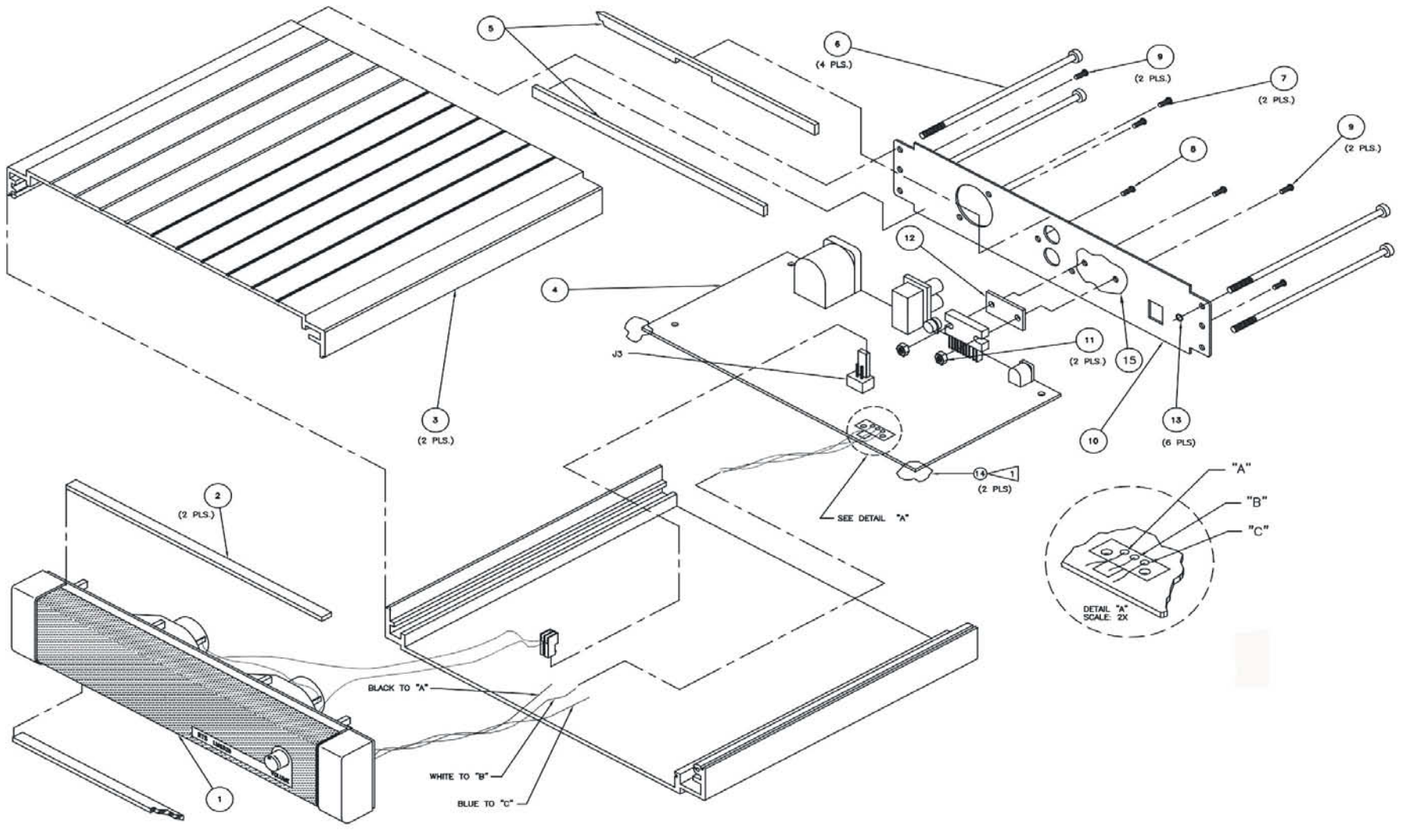
NOTES:

1. APPLY (14) TO (3) AFTER (4) IS POSITIONED INTO SLOTS OF (3).

SHEET REV.	SHEET REVISION STATUS

REVISIONS

LOC.	REV.	DESCRIPTION	ECO. NO.	DFT	CHK	APP	DATE
	A	RELEASE TO MFG.	60198	KS	KS		1/26/95
	B	EXTENSIVE CHANGES, SEE ECO	60572	DS			
	C	ADD ITEM 15	60804	JC	JC	–	9-27-95
	D	CHG. VIEW WAS: SINGLE SPEAKER SHOWN	63673	KS	KS		4/14/99



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STRAIGHTNESS AND/OR FLATNESS .005 IN/1 IN.
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ANGLES 61/2° BENDS 62°
UNMARKED ANGLES, BENDS AND INTERSECTIONS 90°
THREADS- EXT. CLASS 2A INT. CLASS 2B
HOLD FINISH SPI-SPE NO. 3
DRAFT 2°

DECIMAL
.X ±.050 IN.
.XX ±.030 IN
.XXX ±.015 IN.

MACHINED FINISH 64

DR	KS	CK	KS	APP
DATE	1/22/95	SCALE	NONE	

DO NOT SCALE DRAWING

TELEX.

MINNEAPOLIS, MINNESOTA

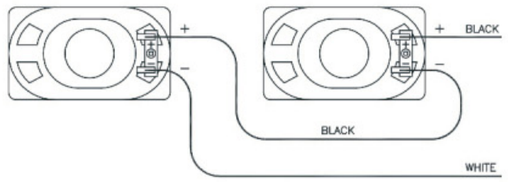
TITLE: LMS325 FINAL ASSY.

SIZE D | DWG. NO. 9010-7490 | SHT. 1 OF 1

PLANT DIST. B.E.

NOTES:

1. WIRES TO BE TWISTED.



SPEAKER WIRING

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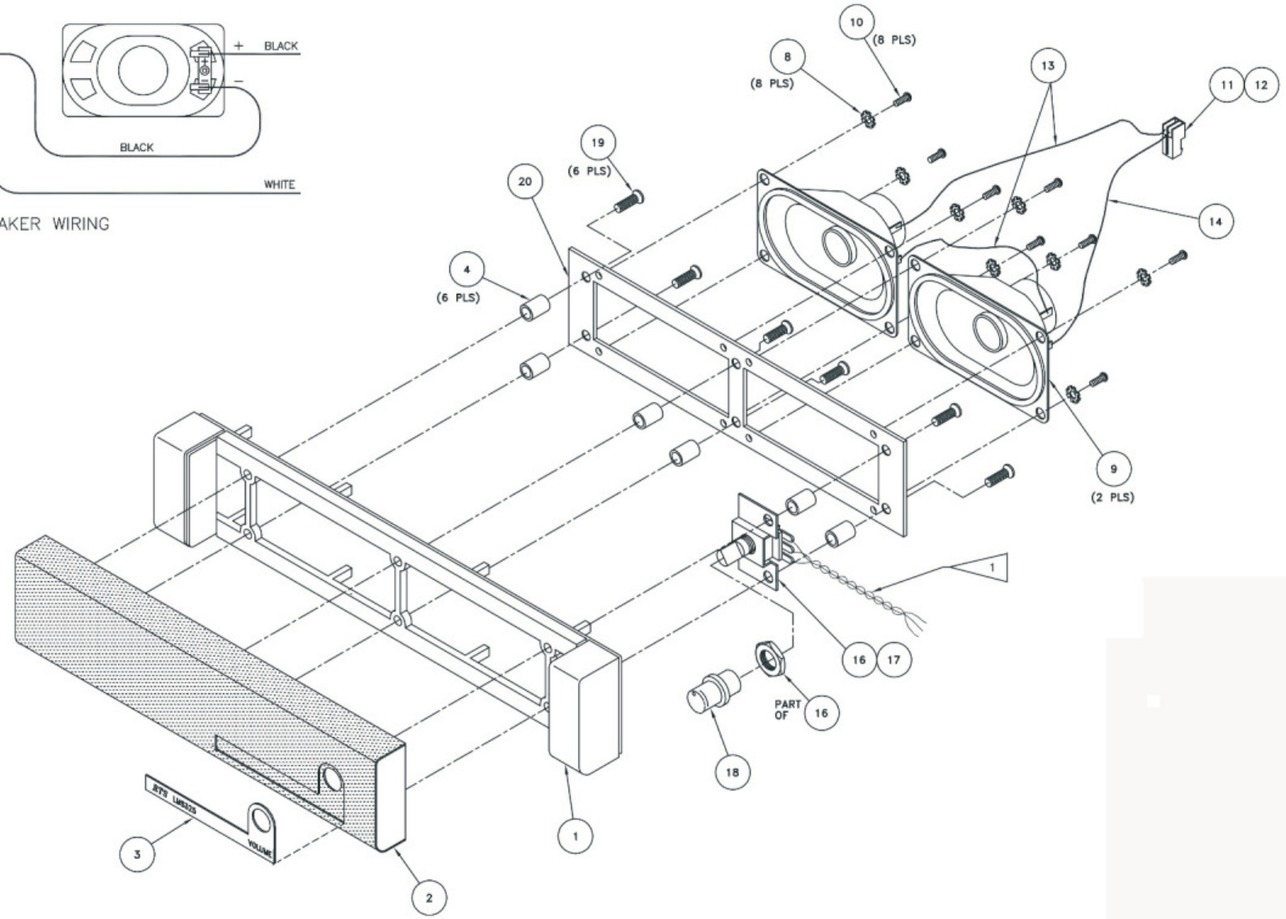
							B	EXTENSIVE CHANGES–SEE ECO FOR DETAILS	63673	KS	KS		4/15/99
							C	ADD ITEM 8; CHG. SHT. 2	63744	KS	KS		8/4/99



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		STRAIGHTNESS AND/OR FLATNESS .005 IN./1 IN.	DECIMAL .X ±.050 IN.	DATE 1/22/95 SCALE FULL	
		CONCENTRICITY .010 TIR	.XX ±.030 IN.	DO NOT SCALE DRAWING	
		ANGLES ±1/2° BENDS 45°	.XXX ±.010 IN.	TELEX.	SIZE D DWG. NO. 9020-7490-000
		UNMARKED ANGLES, BENDS AND INTERSECTIONS 90°			SHT. 1 OF 2
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NOTES:

REVISIONS						
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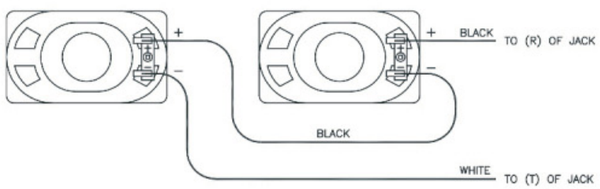
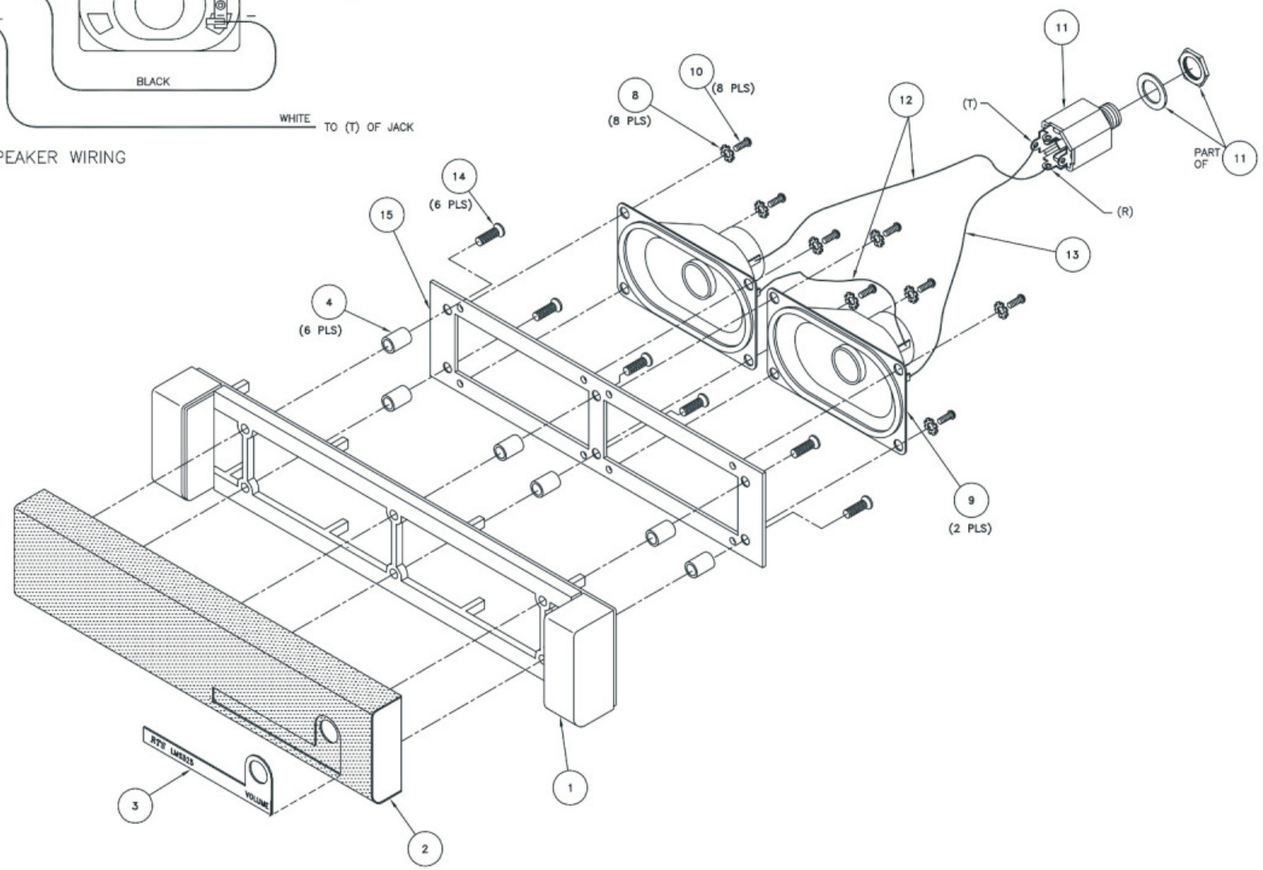
	A	RELEASE TO MFG.	60198	KS	KS	TAY	1/26/95
	B	EXTENSIVE CHANGES-SEE ECO FOR DETAILS	63673	KS	KS		4/15/99
	C	ADD ITEM 8	63744	KS	KS		8/4/99



SPEAKER WIRING



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FILE NAME: 90207490_2.DWG	MODEL	NEXT ASS'Y			

1. INPUT GROUND AND POWER SUPPLY GROUND SHOULD BE TIED TOGETHER AT PIN 7 OF U1
2. U2 AND U3 TO BE SOCKETED
3. ALL RESISTORS TO BE OHMS, 5% UNLESS OTHERWISE SPECIFIED
4. ALL CAPACITORS TO BE uF UNLESS OTHERWISE SPECIFIED.

REVISION RECORD							
LOC.	REV.	DESCRIPTION	ECO NO.	DRFT.	CHKR	APP	DATE
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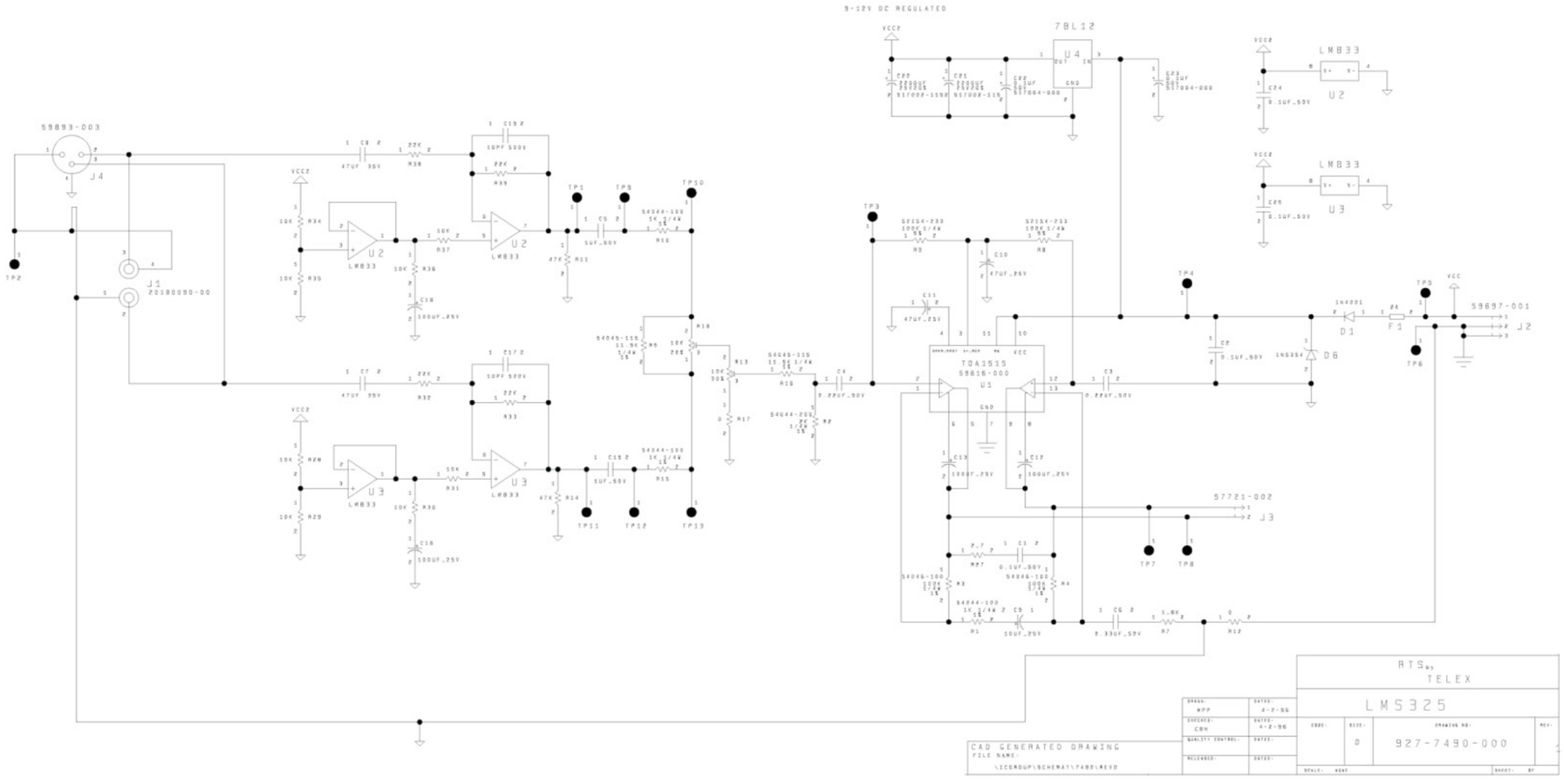
	B	R13 NOT STUFFED	60572	DP			5-17-95
	C	CHNG PARTCODE OF F1	60804	MK			9-26-95
	D	DSN CHNG TO FIX XTALK	60930	CBH			4-17-96
	E	DELETE C14	62534	CBH			4/28/97

9-12V DC REGULATED



				SHEET	SHEET REVISION STATUS
				REV.	

REVISION

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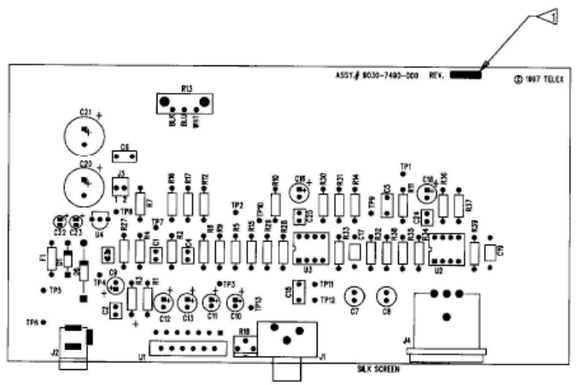
	C	CHANGED NOTE 3	60572	DP			07-25-95
	D	CHANGED NOTE 3	60804	MK			09-27-95
	E	NEW LAYOUT TO CORRECT XTALK PROBLEM	60930	CBH			04-12-96
	F	CHANGED GND PLANE TO "AGND"	62306	CBH			04-28-97
	G	CHANGED NOTE 3	63233	CBH			12-9-97
	H	SWAPPED PINS 2 & 3 ON R18 \ CHNGD. NO 3	63378	CBH			12-9-97



NOTES:
1. MANUFACTURING TO STAMP REV ON BOARD THAT AFARS ON DRAWING
2. REFERANCE SCHEMATIC DRAWING 9027-7490-000 P E
3. PARTS LIST FILED SEPARATLY 9030-7490-000 RE G

-004 QTY.	-003 QTY.	-002 QTY.	-001 QTY.	-000 QTY.	ITEM NO.	REF. DESIG.	PART NUMBER	DESCRIPTION
					REV	LIST OF MATERIALS		

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MODEL	NEXT ASS'Y

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STRAIGHTNESS AND/OR FLATNESS .003 IN./1 IN.
CONCENTRICITY .010 TIR
ANGLES P1/2D BENDS P2D
UNMARKED ANGLES, BENDS AND INTERSECTIONS 90D
THREADS- EXT. CLASS 2A INT. CLASS 2B
MOLD FINISH SPI-SPE NO. 3
DRAFT 2D

DECIMAL
.X P.050 IN.
.XX P.030 IN
.XXX P.010 IN.

MACHINED FINISH: 64

DR. DP | CK. | APP.
DATE: 12-21-94 | SCALE 1
DO NOT SCALE DRAWING

TELEX
MINNEAPOLIS, MINNESOTA

TITLE LMS-325 LINE MONITOR SPEAKER UNIT ASSEMBLY DRAWING
P/N
SIZE C | DWG. NO. 9030-7490-000 | SHT. OF 1 OF 1
PLANT DIST. B.E.